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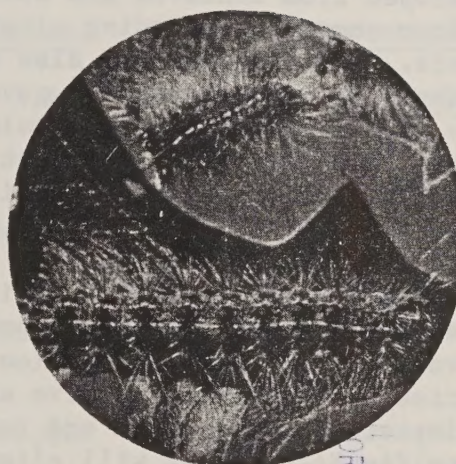
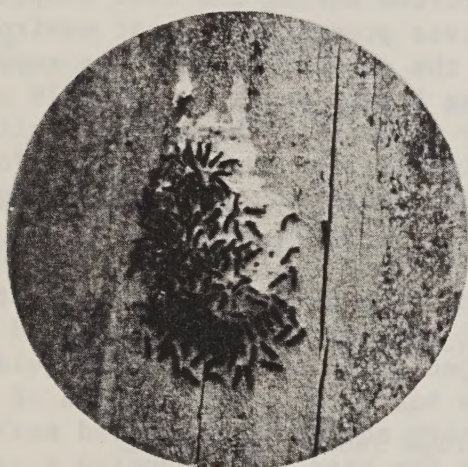


MAY 1981

NUMBER FOUR

GYPSY MOTHS NEWS

370 REED ROAD, BROOMALL, PA 19008
U.S.D.A., FOREST SERVICE

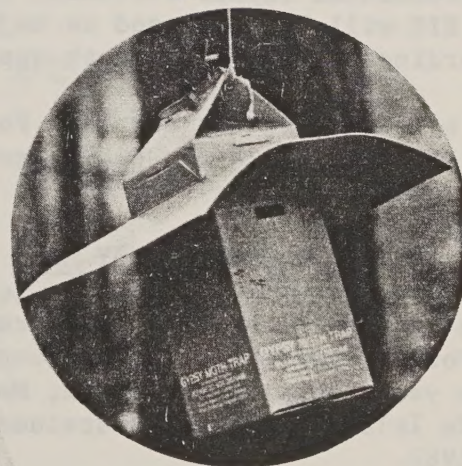
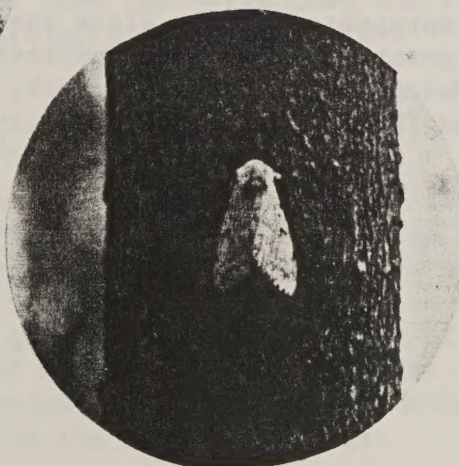


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PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT DEVELOPED

USDA Forest Service and Animal and Plant Health Inspection Service (APHIS), this year, developed a Programmatic Environmental Impact Statement (PEIS) for Cooperative Gypsy Moth Suppression and Regulatory Program Activities. Work on the PEIS began shortly after gypsy moth suppression and regulatory program activities in 1980 and was completed last month with the April 6th signing of the Record of Decision by Forest Service Chief Max Peterson and APHIS Administrator Harry Mussman.

The PEIS describes the biological, physical, economic, and social effects of implementing the following alternatives to suppress or regulate gypsy moth infestations: (1) chemical insecticide treatment; (2) biological insecticide treatment; (3) an integrated pest management (IPM) approach; and (4) no action. These alternatives were developed from concerns and issues raised during the 1980 scoping sessions, and from comments regarding alternatives presented in past environmental impact statements. The alternatives also meet the objectives of State suppression projects and adhere to USDA guidelines governing Forest Service and APHIS participation in gypsy moth suppression and regulatory projects. The selected alternative identified in the PEIS is the IPM approach, which will be carried out by Forest Service and APHIS through technical and financial assistance to cooperating State agencies.

Decisions regarding Federal financial assistance will be made annually on the basis of documented site-specific Environmental Assessments (EA) developed separately by the U.S. Forest Service for suppression projects and by APHIS for regulatory program activities. The PEIS will serve as the basis for documentation of the environmental impact of suppression and regulatory activities proposed each year in the site-specific EA's. This will eliminate the need for producing a separate environmental impact statement (EIS) each year. The PEIS will be amended or a new EIS will be developed as major changes occur in USDA policy or in conditions regarding current gypsy moth suppression and regulatory methodologies.

The site-specific EA for 1981 Forest Service gypsy moth suppression projects was available for a 24-day public review on April 8.

FIVE STATES TO TREAT GYPSY MOTH

Five States in the Northeast, represented by six State agencies, plan to participate in Forest Service-sponsored cooperative gypsy moth suppression project activities this year. The participants, Maine, New Jersey, New York, Pennsylvania and Rhode Island, together sustained 70 percent of the total gypsy moth defoliation in 1980.

According to the site-specific EA for 1981 cooperative suppression projects, these States will be using biological and chemical insecticides in an integrated approach to directly suppress gypsy moth populations in selected areas where natural controls will not prevent excessive tree defoliation and larval nuisance. A total of 435,854 acres are planned for such treatment. Most of the infested area in these States will be left to natural control by parasites, predators, and disease. In some cases, natural control will be augmented by release of selected gypsy moth parasites.

The following is a summary of expected treatments, by State, as presented in the 1981 site-specific EA. At this writing, proposed treatment figures were being revised downward as counties and municipalities decided whether or not to participate in this year's project. The final figures will not exceed those presented here.

<u>State</u>	<u>Agency</u>	<u>Acres</u>	<u>Insecticides</u>
Maine	Bureau of Forestry	5,454	<u>Bacillus thuringiensis (B.t.)</u> carbaryl
New Jersey	Agriculture	66,100	<u>B.t.</u> ; carbaryl
	Bureau of Forest Mgt.	13,800	carbaryl
New York	Bureau of Forest Mgt.	140,000	<u>B.t.</u> ; carbaryl; trichlorfon; deflubenzuron; acephate
Pennsylvania	Bureau of Forestry	175,500	<u>B.t.</u> ; trichlorfon
Rhode Island	Agriculture	35,000	carbaryl

Forest Service FPM personnel from the Morgantown and Portsmouth Field Offices will be on site monitoring the projects in these States.

GYPSY MOTH TO BE ERADICATED IN NINE STATES

In accordance with the site-specific Environmental Assessment for Regulatory Program Activities, USDA APHIS will use an integrated approach to attempt eradication of gypsy moth populations in nine States this year. The projects will include aerial and ground treatments with chemical and biological insecticides, and aerial application and ground placement (traps) of the gypsy moth mating disruption pheromone. APHIS notes that some of these activities are developmental in nature and are being carried out part of their Methods Development activities. Projects will be conducted in the following areas:

<u>State</u>	<u>County</u>	<u>Acres</u>	<u>Treatment</u>
California	Orange	100	carbaryl
Illinois	DuPage	50	carbaryl
	Lake	38	carbaryl
	McHenry	100	<u>Bacillus thuringiensis (B.t.)</u>
		400	pheromone traps
Michigan	Kalamazoo	600	carbaryl
	Oakland	700	carbaryl
	Wayne	400	carbaryl
	Kent	225	pheromone traps
		500	<u>B.t.</u>
		1,040	Disparlure
Nebraska	Lancaster	2,000	pheromone traps
Ohio	Stark	300	carbaryl
	Ottawa	700	trichlorfon
	Montgomery	200	carbaryl
Oregon	Marion	20	acephate
Virginia	Floyd	1,400	diflubenzuron
Washington	Clark	10	carbaryl
	King	1,500	pheromone traps
		10	<u>B.t.</u>
Wisconsin	Outagamie	160	pheromone traps
	Waukesha	150	Disparlure
		1	carbaryl

APHIS has redirected funds usually reserved for campground treatment into a higher priority activity of regulating outdoor household articles. Part of the rationale behind this was the incidence of new infestations found last season in California, Illinois, Nebraska, Ohio, Oregon, and Washington, and traceable to movement of household articles from the Northeast. The agency will, however, provide technical assistance and supervision in the treatment of campgrounds to States that request it. As of this writing, only Pennsylvania has expressed an interest in receiving assistance in the treatment of campgrounds.

Finally, gypsy moth survey trapping will be conducted on the same magnitude as last season when approximately 120,000 traps were set in 24 States. This year, however, APHIS will place more emphasis on urban trapping.

VIRGINIA AND WEST VIRGINIA GEAR UP FOR GYPSY MOTH

The Virginia Division of Forestry (VDF) will work with the Virginia Department of Agriculture and Consumer Services (VDACS) in placing gypsy moth survey traps on a 3 x 2 km grid in Albermarle and Washington Counties this year. VDACS will coordinate the Statewide male moth trapping program and the special "elimination" program for gypsy moth in Floyd County in addition to their parasite rearing and release efforts. VDF will continue efforts to determine establishment of exotic gypsy moth parasites through collection and rearing of potential native insect hosts. This year VDF also expects to continue the annual gypsy moth aerial survey in northern Virginia in cooperation with USDA Forest Service.

The State of West Virginia also will be busy this year. Pheromone traps will be established in northern, central and eastern parts of the State on a 3 km grid pattern. Additional traps will be placed in selected counties in the southern part of the State and in State parks and forests, and public hunting and fishing areas. The West Virginia Departments of Agriculture and Natural Resources also will help by placing traps at random in counties along the Ohio River. Another survey involving placement of burlap bands around host trees will be conducted in Jefferson and possibly Berkeley and Morgan Counties to detect and delimit the extent of gypsy moth larval populations. Two gypsy moth infestations are known to exist in Jefferson County but no plans have been made to treat these areas in 1981.

Finally, gypsy moth biocontrol efforts in West Virginia for the 1981 season will involve the release of the Tachinid Fly parasites Parasetigena silvestris (Robineau-Desvoidy) and Blepharipa pratensis (Meigen), and the egg parasite Ooencyrtus kuwanai (Howard). Release sites will be selected according to evidence of significant gypsy moth populations as based on 1980 pheromone trapping records.

WILDLIFE HABITAT STUDY UPDATE

The Forest Pest Management Staff in Morgantown, WV, has been working cooperatively with Northeastern Forest Experiment Station foresters in Resources Evaluation and Forest Economics to evaluate the long-term impact of gypsy moth-caused tree mortality on wildlife habitat, tree regeneration and timber stands. Vegetation data were collected from 72 permanent plots in the eastern Pennsylvania Poconos and from 15 in the northern New Jersey Highlands which had been established on the frontier of gypsy moth infestations in the late 1960's and early 1970's.

Project data relevant to timber volume and value changes and forest stand responses to the initial gypsy moth outbreak in the Poconos have been analyzed and will appear soon as a NEFES Research Note. Data on wildlife habitat impacts are currently being analyzed to document the influence of gypsy moth outbreaks on selected nongame birds and mammals important in the ecology of Northeastern oak forests. The impact on tree regeneration should provide an assessment of early succession and potential stocking of forest trees following a gypsy moth outbreak. A project report will be available later this year.

GYPSY MOTH INFESTATIONS TO BE TRACKED BY COMPUTER

The Forest Pest Management Staff hopes to have an automated geographical information system (AGIS) for documenting locations of gypsy moth infestations operating in the Northeastern Area by mid-FY 1982. The system will be developed and evaluated this year in cooperation with Pennsylvania's Division of Forest Pest Management for implementation.

Why use this approach to documenting gypsy moth outbreaks? Over the past few years, several needs have surfaced which are best met by AGIS. These include:

1. A single USDA source for reporting defoliation figures and displaying their locations annually and historically.
2. Precisely placing survey plots for forest damage appraisals and impact evaluations in stands with multiple year defoliation.
3. Presenting gypsy moth infestation data within the framework of the Forest Insect and Disease Information System (FIDIS). This consists of periodically providing defoliation and tree mortality data by landownership for national and regional program planning and funding of forest pest management.

RISK-RATING FOREST STANDS IN PENNSYLVANIA

This summer Forest Pest Management personnel will once again collect field data from permanent plots in Pennsylvania for the Risk-Rating Pilot Project. The project's goal is to evaluate the predictive value of two mathematical models. The models have a potential for use by forest managers for identifying forest stands which could be affected adversely by the gypsy moth.

Each year a number of stand and tree variables are measured in the 603 plots in the project. Surveys are conducted to determine egg mass densities and tree defoliation. In addition, host tree vigor is being monitored by sampling basal roots for starch content.

A large body of data has been assembled and currently is being analyzed. This information will be reported during the final year of the project; however, a preliminary analysis indicates the following:

1. Defoliation in the plot system has increased in the past 3 years with 12 plots incurring defoliation equal to or greater than 50 percent for 2 consecutive years.
2. Root samples from at least three different trees of the same species are necessary to determine the starch levels of that tree species in each plot.

3. Seventy-eight plots of 153 measured contain sufficient habitat sites favoring gypsy moth outbreaks that they have been classified as being susceptible to gypsy moth defoliation.
4. Hazard rating indices indicate that in 497 of the plots, tree mortality can be expected to reach up to 24.9 percent while in 106 plots it will be equal to or greater than 25 percent.

HAMDEN RESEARCH ACTIVITIES

The Northeastern Forest Experiment Station at Hamden, CT, is continuing research on a variety of gypsy moth-related activities. During the past year evaluations of the exotic braconid endoparasite, Rogas lymantriae, have shown that it is compatible with Apanteles melanoscelus, the most important existing early larval parasite. This season, innoculative releases of R. lymantriae will be conducted at three locations in Connecticut.

Increased utilization of tachinid parasites of gypsy moth is planned in cooperation with APHIS and SEA. During 1978-1979, it was demonstrated that Blepharipa pratensis could be effectively used for augmentation and confined to a small geographical area. During 1981, studies will be undertaken to determine the potential of selected tachinids for vectoring gypsy moth nucleopolyhedrosis virus (NPV).

Recent predator evaluations in Vermont have indicated that there is subtle variability within and outside of outbreak focal areas. The avian predator community has been characterized through censuses and a publication is being prepared on this topic. During 1981, continuous monitoring of the gypsy moth predator community in outbreak focal areas in Vermont will be conducted. Evaluation of avian predation will be intensified and a collaborative study with microbiologists will continue on the interaction of small mammals and gypsy moth NPV.

Research is being conducted in cooperation with APHIS and SEA on the application of the sterile male technique for suppressing gypsy moth populations. Operational release of 9,000 sterile males per day for 35-40 days went quite well last season. Data have not been completely analyzed so no conclusions can be drawn yet. Further releases are planned this season in southwestern Michigan.

Hamden scientists have been studying the nitrogen utilization efficiency of the gypsy moth and spruce budworm. Also under investigation is an assessment of phenolic compounds in relation to utilization efficiency and influence they may have on susceptibility to disease. Studies will continue this year with a broadening of physiology studies on gypsy moth.

Behavioral studies on gypsy moth were undertaken recently and will be continued this year to determine the mobility of late instar gypsy moth larvae and to evaluate the potential of using burlap bands as sampling devices. Finally, Hamden scientists will evaluate gypsy moth population quality, based on egg size and pre-feeding period, to quantify differences between populations.

MICROBIAL INSECTICIDES TO BE TESTED

USDA Forest Service at Hamden, CT, will conduct field tests with Bacillus thuringiensis (B.t.) and the gypsy moth nucleopolyhedrosis virus, Gypchek, this season at two locations in Connecticut. The first test involves evaluations of two new promising strains of B.t. versus the present HD-1 strain for effectiveness against the gypsy moth. Two applications of each treatment are planned at a rate of 8 billion international units in 1 gallon per acre. The project will be conducted in Harwinton, CT, in cooperation with the Connecticut Agricultural Experiment Station and Connecticut Department of Environmental Protection (DEP). The Gypchek test will take place on the Cockaponset State Forest in cooperation with Forest Pest Management, Northeast Forest Experiment Station Durham, NH, and Connecticut DEP. Two formulations of Gypchek will be evaluated as a replacement for the standard Shade®-molassas tank mix. Two dose rates of the first formulation, consisting of Gypchek and a polymer-based sunscreen called Pro-Tec®, will be applied in 2 gallons per acre. The second formulation is a promising emulsifiable concentrate of Gypchek similar to the B.t. product Dipel® 4L. Gypchek emulsifiable concentrate will be applied at a rate of 25 million gypsy moth potency units in 2 gallons per acre. Both of these field tests may promise greater efficacy for B.t. and Gypchek.

In a related item, USDA Forest Service, APHIS, and SEA/AR scientists are continuing to conduct methods improvement studies on various aspects of Gypchek production.

. . . AND AT THE OTIS METHODS DEVELOPMENT CENTER

Field tests conducted this year by the Otis Methods Development Center will include pilot testing the growth regulator, Mobay Sir 8514, in Pennsylvania. This compound has demonstrated excellent control in small scale field tests; these studies, conducted cooperatively with the Pennsylvania Department of Environmental Resources, will assess activity on an operational scale. Trials with Thuricide® 16B will be conducted in Massachusetts in cooperation with the Massachusetts Department of Environmental Management. Those studies will address the bearing of application frequency and rates on efficacy.

The mating disruption demonstration project in Oconomowoc, Wisconsin, will continue this year. In 1979, approximately 500 acres were treated with Gypchek and Disparlure. A survey in 1980 indicated that only three small pockets of infestation remained, and these will be treated with Disparlure in 1981. A similar study will be initiated in Caledonia, Michigan, this year. Mating disruption tests are planned also in MA.

Scientists are attempting to define population quality and relating this to mating disruption efficacy. A mass trapping trial is planned also for an isolated infestation near Seattle, Washington.

The sterile male technique (SMT) pilot test initiated in Berrien County, Michigan, will continue this year. In 1980 it was learned that bird predation of released moths is a significant factor compromising the effectiveness of this technique. This loss must be minimized for the method to perform at its full theoretical potential and will be the subject of additional studies at Otis. Preliminary 1980 results, however, indicated that interaction of released moths with the native population occurred. The effects on reproduction and population increase will not be known until the 1981 survey is completed.

The Otis Center in an agreement with Forest Pest Management and Forest Insect and Disease Research NEFES is also involved in a Gypchek production program which should lead to the production of 300 lbs. Gypchek powder. Approximately 3,000 lbs. of virus diseased larvae will be produced during this project.

GYPSY MOTH: A DILEMMA

So says the title of this new 16mm film produced by Agriculture Canada. The color film which is about 15 minutes long contains some excellent photography of the gypsy moth life stages as well as the dramatic damage that the larval stage can cause. The production also briefly presents the gypsy moth program conducted by the Canadian Government.

USDA Forest Service has obtained several copies of this film which are available to Federal, State, and local agencies, civic organizations, and the public in general. If you would like to obtain a copy of the film on loan, contact:

Public Information Officer
NA-S&PF
USDA Forest Service
370 Reed Road
Broomall, PA 19008

GYPSY MOTH BROCHURES TO LOOK FOR

The Forest Service's Northeastern Area, Forest Pest Management Staff currently is developing two gypsy moth-related brochures for popular distribution. The first publication will be for the homeowner and will describe actions the individual can take to manage gypsy moth populations. The second publication will describe the various ways nature deals with the gypsy moth. This brochure will be a revision of an earlier one, now out of print, entitled, "Working with Nature to Control the Gypsy Moth."

These brochures will be printed in sufficient numbers for public distribution at gypsy moth scoping meetings, town meetings, and other gatherings where gypsy moth is the topic. They should be available later this year. We will keep you posted.

NEW GYPSY MOTH PUBLICATIONS

USDA Forest Service announces the availability of Forest Insect and Disease leaflet (FIDL) #162 entitled "The Gypsy Moth." The FIDL contains many color photographs and briefly discusses gypsy moth life stages and development, damage, hosts, natural and applied control techniques. This leaflet is available in limited quantities only. Requests for single copies may be made to:

Public Information Officer
NA-S&PF
USDA Forest Service
370 Reed Road
Broomall, PA 19008

The State of Pennsylvania Office of Resources Management, Bureau of Forestry has recently printed a new pamphlet entitled "The Gypsy Moth." The publication is written in two parts complete with color and black and white photographs. The first section describes the insect and its control, including the insect life stages, the damage it causes, natural control agents, and the history of gypsy moth in Pennsylvania, among other topics. The second section describes Pennsylvania's gypsy moth management program including cooperative spraying, biological control and integrated pest management (IPM). This pamphlet is available in single copies only. Interested parties should contact:

Division of Forest Pest Management
Pennsylvania DER, Bureau of Forestry
34 Airport Road
Middletown, PA 17057

ENVIRONMENTAL DOCUMENTS AVAILABLE

For those of you who were not on the mailing list, USDA Forest Service has a limited number of copies of the following environmental documents:

Final PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT for Proposed
Cooperative Gypsy Moth Suppression and Regulatory Program
Activities.

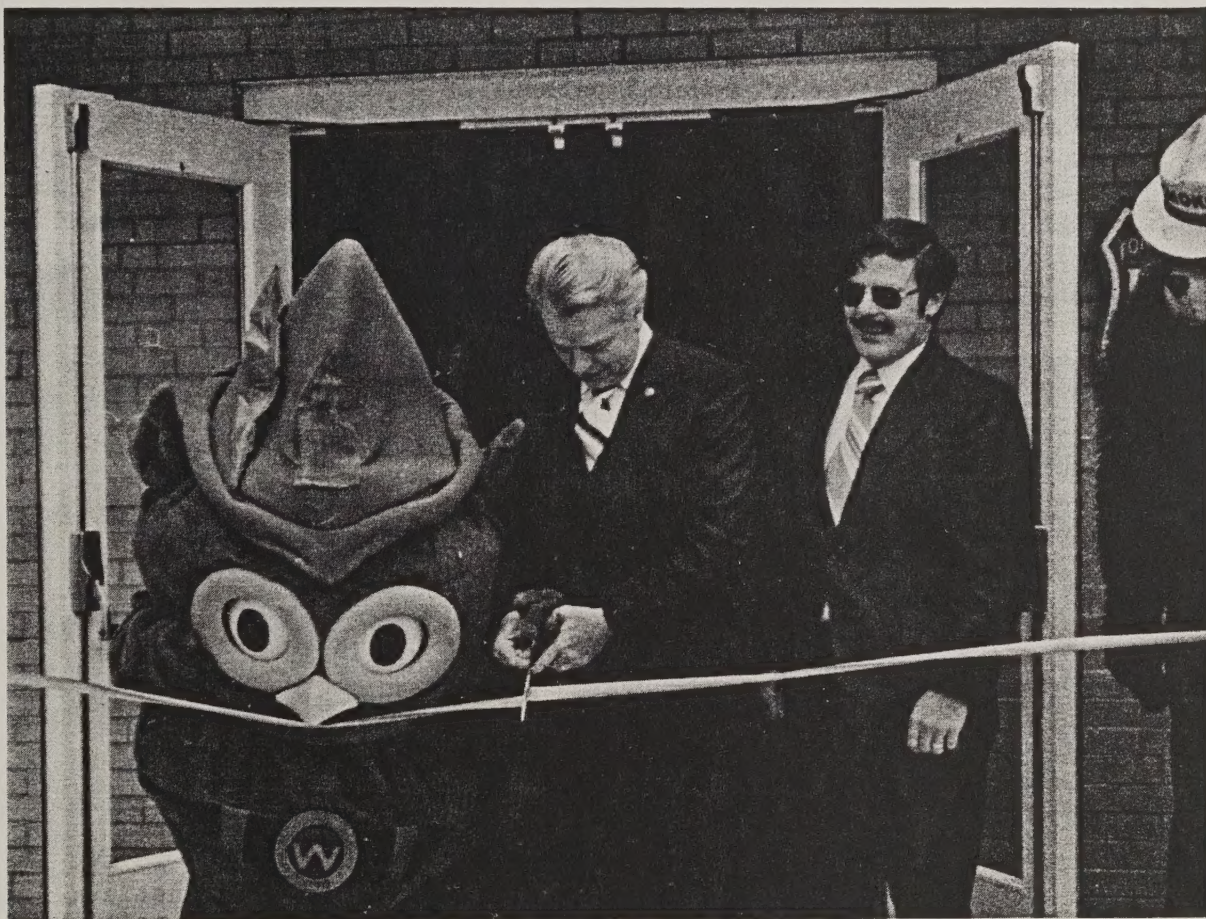
ENVIRONMENTAL ASSESSMENT, USDA Forest Service Cooperative Suppression
Projects, 1981.

These may be obtained by writing to:

USDA Forest Service
Forest Pest Management
370 Reed Road
Broomall, PA 19008

NEW FACILITY DEDICATED

Forest Pest Management is now "officially" in Morgantown, West Virginia. The recently completed addition to the USDA Forest Service's Forestry Sciences Laboratory was formally dedicated April 25 by U.S. Senator Robert C. Byrd during a public ceremony. The Senator was introduced by Allen J. Schacht, Director of the Northeastern Area State and Private Forestry, USDA Forest Service. Schacht, who served as Master of Ceremonies, was joined by Dr. F. Bryan Clark, Associate Deputy Chief for Research, representing Forest Service Chief Max Peterson. Also, attending were Forest Service personnel from Broomall, PA and Morgantown.



Bird to Byrd. U.S. Senator Robert C. Byrd, with an assist from Woodsy Owl, cuts the ribbon dedicating the new Morgantown facility while NA Director, Allen Schacht, and Smokey Bear look on.



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For those of you who missed the announcement of FPM's move in the last newsletter, below is our new address and telephone numbers:

USDA Forest Service
Forest Pest Management
180 Canfield Street
Morgantown, WV 26505

Telephone: Commercial (304) 599-7133 or 7566
FTS 923-7133 or 7566

NEW FACES IN FPM

Forest Pest Management, Morgantown Field Office is now fully staffed following the retirement and transfer of several persons as a result of the move from Delaware, Ohio.

ALLAN T. BULLARD, formerly entomologist with the Methods Application Group (MAG) in Davis, CA, is now Field Representative of Morgantown Field Office, FPM Staff.

MANFRED E. MIELKE, formerly biological technician with FPM, Region 3, Albuquerque, NM, is now an entomologist with FPM, Morgantown Field Office.

HELEN A. MACHESKY, formerly secretary with Forest Resources Economics Research, WO, is now secretary-typist with FPM, Morgantown Field Office.

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